CLAIMS

What is claimed is:

1. A wire comprising a component extending along a longitudinal axis and including at least one first channel extending generally along the longitudinal axis,

wherein the component is selected from a conductor, insulation, a jacket or combinations thereof to form a channeled component,

with the proviso that where the channeled component consists of an insulation, an outer peripheral surface of a conductor forms one side of the at least one first channel.

2. The wire of claim 1, wherein the channeled component includes at least a channeled jacket.

3. The wire of claim 2, further comprising a core element extending along the longitudinal axis, wherein the channeled jacket surrounds the core element to form an isolated core.

4. The wire of claim 3, wherein the isolated core has an overall dielectric constant of less than 3.0.

5. The wire of claim 3, wherein the at least one first channel contains a material that has a dielectric constant that differs from a dielectric constant of the jacket.

6. The wire of claim 5, wherein the at least one first channel contains air.

7. The wire of claim 3, wherein the jacket includes a plurality of channels.

8. The wire of claim 7, wherein no one of the plurality of channels has a cross-sectional area greater than about 30% of a cross-sectional areas of the jacket.

9. The wire of claim 3, wherein the core element forms one side of the at least one first channel.

10. The wire of claim 3, wherein the jacket fully surrounds the at least one first channel.

11. The wire of claim 3, wherein the core element forms one side of at least a first channel and the jacket fully surrounds at least one second channel.

12. The wire of claim 3, wherein the at least one channel has a cross-sectional area of at least 2.0×10^{-5} in^2.

13. The wire of claim 3, wherein the isolated core has a diameter of less than about 0.25 in.

14. The wire of claim 13, wherein the jacket has a thickness of less than about 0.030 in.

15. The wire of claim 3, wherein a shape of the at least one first channel is selected from the group consisting of rectangular, trapezoidal and arched.

16. The wire of claim 3, wherein the core element is selected from the group consisting of a copper conductor, a fiber optic conductor, an insulated conductor, a twisted pair, insulation, a shield, a separator and combinations thereof.

17. The wire of claim 16, wherein the core element includes a channeled insulation, a channeled conductor, or combinations thereof.

18. The wire of claim 16, wherein the core element includes a plurality of twisted pairs.

19. The wire of claim 18, wherein delay skew is no greater than 15 ns between individual twisted pairs.

20. The wire of claim 3, wherein the isolated core passes a test selected from the group consisting of NFPA 255, NFPA 259, NFPA 262 or combinations thereof.

21. The wire of claim 20, wherein the isolated core passes all of NFPA 255, NFPA 259 and NFPA 262.

22. The wire of claim 3, wherein the isolated core generates at least 10% less smoke when burned according to a UL 910 Steiner Tunnel test then when compared to an isolated core without channels in its jacket.

23. The wire of claim 3, wherein the isolated core spreads flame at a rate at least 10% slower when burned according to a UL 910 Steiner Tunnel test when compared to an isolated core without channels in its jacket.

24. The wire of claim 3, wherein the jacket has a first portion with a first signal speed and a second portion with a second signal speed, wherein the first signal speed is significantly faster than the second signal speed.

25. The wire of claim 24, wherein the first portion includes the at least one first channel.

26. The wire of claim 24, wherein the first signal speed is at least about 5% faster than the second signal speed.

27. The wire of claim 26, wherein the first signal speed is at least about 10% faster than the second signal speed.

28. The wire of claim 1, wherein the channeled component includes at least a channeled conductor.

29. The wire of claim 28, further comprising, insulation extending along the longitudinal axis, wherein the insulation surrounds the channeled conductor to form an insulated, channeled conductor.

30. The wire of claim 29, wherein the at least one first channel contains a material that has a dielectric constant that differs from a dielectric constant of the insulation.

31. The wire of claim 30, wherein the at least one first channel contains air.

32. The wire of claim 30, wherein the conductor includes a plurality of channels.

33. The wire of claim 29, wherein two insulated, channeled conductors are twisted together to form a twisted pair.

34. The wire of claim 33, further comprising a plurality of the twisted pairs.

35. The wire of claim 34, further comprising a jacket surrounding the twisted pairs.

36. The wire of claim 35, wherein the jacket is a channeled jacket.

37. The wire of claim 29, further comprising a channeled insulation, a channeled jacket or combinations thereof.

38. The wire of claim 1, wherein the channeled component includes at least a channeled insulation.

39. The wire of claim 38, further comprising a channeled conductor, a channeled jacket or combinations thereof.

40. A wire comprising:

a core element extending along a longitudinal axis and including a plurality of twisted pairs; and

a jacket surrounding the core element and at least one first channel in the jacket extending generally along the longitudinal axis to form an isolated core.

41. A wire comprising:

a conductor extending along a longitudinal axis;

a component surrounding the conductor, where the component is selected from a jacket, an insulation or combinations thereof;

an inner portion of the jacket, wherein the inner portion has a first signal speed; and

an outer portion of the jacket, wherein the outer portion has a second signal speed greater than the first signal speed.

42. The wire of claim 41, wherein a composite density of the inner portion is at least about 10% less than a composite density of the outer portion.

43. The wire of claim 42, wherein the inner portion includes at least one channel extending along the longitudinal axis.

44. The wire of claim 41, wherein the component has a dielectric constant of less than about 3.0.

45. The wire of claim 41, wherein the first signal speed is at least about 2% faster than the second signal speed.

46. The wire of claim 45, wherein the first signal speed is at least about 5% faster than the second signal speed.

47. The wire of claim 46, wherein the first signal speed is at least about 10% faster than the second signal speed.

48. The wire of claim 41, wherein the component has a diameter of less than about 0.25 in.